P/35-6 CIP

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of Krysiak et al.

Serial No.: 09/544,878 Group Art Unit: 3643

Filed: April 7, 2000 Examiner: Valenti, A.

For: SEEDING TREATMENTS

Box Response
Assistant Commissioner for Patents
Washington, D.C. 20231

**DECLARATION OF LEE HOFFMANN**

I, Lee Hoffmann declare as follows:

1. I have 27 years of experience in the field of agglomeration with Feeco International.

2. I have reviewed the application of the present invention.

3. I have reviewed the Schuart patent, DE 3442317.

4. In the world of agglomeration (particle size enlargement), there are four distinctively different types of processes: lift and tumble, pressure, liquid and thermal.

5. The process of the present invention is classified as lift and tumble, while the process disclosed and taught by Schuart requires liquid agglomeration. This can be more clearly understood when the methods and equipment used to produce such products are explained below.

6. Lift and Tumble:

This process is defined as agglomeration by tumbling (growth). Particles are adhered together by use of balling drums, pans, cones and mixers via impact and tumbling. The resultant shape is a sphere. Agitation agglomeration can use the following equipment: mixers (planetary, cone, ribbon, pintype, drum, counter-current, vertical, paddle, pugmills), Disc pelletizers (pan granulators), drum pelletizers and cone pelletizers.

7. Pressure:

Pressure agglomeration utilizes methods such as extrusion presses, pelleting machines (pelletized), piston presses (tabletting) and roller presses (briquetting, compacting). The pellets are formed by pressure imparted upon the materials. The resultant shape is a cylinder for products made with pelleting machines and extrusion presses. Pressure agglomeration can use the following equipment: roller presses (roll briquetters, roll compactors), piston/ram presses, pellet mills (ring die, flat die), extruders (auger, screw, screen, basket), tablet presses.

8. Liquid

With the liquid process, the liquid spray solidifies into a solid. Liquid agglomeration can use the following equipment: spray dryers, prill towers, spray/fluid bed, granulators, mixers for oil agglomeration.

9. Thermal

Thermal agglomeration requires the addition of an external heat source to result in particle bonding. Typical bonding include sintering, induration, calcining, and a form of flaking. This thermal flaking requires a device that spreads paste or melt as a thin film on the surface of a rotating drum: the film is then solidified by cooling water and scraped off the drum as flakes. Thermal agglomeration can use the following equipment: sinter strands, traveling grates, rotary kilns, shaft furnaces and drum/belt flakers.

10. The present invention relates to a method of making seed capsules in a single apparatus by a tumbling/agitation agglomeration operation comprising: preconditioning the seed with a binding agent while tumbling the seed. The seeds are conditioned by tumbling the seed in a bed of fine particulate to create layers of matter about the seed. The preconditioning and conditioning steps can be repeated to add additional layers to the seed.

11. The coating process of Schuart relates to a liquid coating process where a liquid coating becomes the coat. This is consistent with that of the fluidized bed technology described by Schuart. Fluidized bed systems convert a bed of solid particles into an expanded, suspended mass that has many properties of liquid per Perry's Chemical Engineer's Handbook, sixth addition. Perry's states the following regarding particle size enlargement, "Growth is associated with the liquification or softening of some portion of the bed material. The motion of the particles, one against the other, in the bed results in spherical pellets".

12. Schuart uses the fluidizer to coat the seeds with a mixture of liquids and dusts. Paragraph 8 on page 8 states "Solutions containing binding agents are sprayed

sequentially into the fluidized bed." "Active substances in the form of dust, preferably Kaolin, are sprayed continuously into the fluidized bed...parallel to the injection of the liquids. These two components are brought together to form a liquid or emulsion as the first paragraph on page 8 clarifies by explaining "Deposited on the surfaces of the fluidized seeds are first of all the droplets of sprayed liquids and those active substances..." There is no question that these two components are emulsified when Schuart further goes on to explain in the same paragraph that "the solid substance component of the liquid agglomerated onto the seed surfaces..." Schuart, Example 1, illustrates that the water to dust ratio is greater than 3:1, while Example 2 shows a 2.8:1 ratio.

13. The way a fluidizer works, the dust must become a component of the liquid before the fluidization occurs or else the dust would be forced out of the chamber due to required air flows.

14. It is evident that the fluidized bed method used by Schuart is distinctively different than the lift and tumble method of the present invention.

15. The machines and the processes of the present invention and Schuart are different. Schuart is a liquid agglomeration technique, not an agitation and tumbling agglomeration technique.

16. The Examiner states it would have been obvious to modify Schuart with any of the machines listed in claims 4-17 since these are merely alternate equivalent agglomeration machines that perform the same intended function of agglomerating particles with a coating and one would select a particular agglomeration machine to

satisfy different economic and time parameters and to accommodate different types of fertilizer nutrient coatings.

17. The lift and tumble agglomeration process/machine is a different and unique process from the liquid agglomeration process. As stated above different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce, not to satisfy different economic and time parameters or to accommodate different types of fertilizer of nutrient coatings.

18. Schuart describes a liquid coating process and not an agglomeration operation comprising agitating and tumbling seeds with fine particulate in an apparatus for agglomeration which wraps the layer of fine particulate around the seed.

19. The lift and tumble agglomeration process/machine is a different and unique process from the liquid agglomeration process. As stated above different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce.

20. I hereby declare that all of the statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may

jeopardize the validity of the patent application to which it relates or any patent issued thereon.

Dated: 9/4/03

Lee Hoffmann